

REMARKS

Claims 1-10 are pending herein. By the Office Action claims 1-10 are rejected under 35 U.S.C. §112, second paragraph, and are rejected under 35 U.S.C. §103. By this Amendment, the specification and claims 1, 5, 6, 8 and 10 are amended. No new matter is added. Support for amended claim 1 can be found in the specification at least in Figures 1-5 and 7-9 and in paragraph [0030]. In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Knabbe in the April 10, 2003 telephone interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks. Specifically, claim 1 is amended to comply with the Examiner's helpful suggestions made during the interview.

I. Formal Matters

An Information Disclosure Statement with Form PTO-1449 was filed on June 13, 2001. Applicants have not yet received back from the Examiner a copy of the Form PTO-1449 initialed to acknowledge the fact that the Examiner has considered the cited information. The Examiner is requested to initial and return to the undersigned a copy of the subject Form PTO-1449. For the convenience of the Examiner, a copy of that form is attached.

II. Amendment to Specification

Applicant amends the specification to correct typographical errors and misspellings. Accordingly, no new matter is added.

III. Rejection under §112

The Office Action rejects claims 1-10 under 35 U.S.C. §112, second paragraph as allegedly indefinite. Applicant respectfully traverses the rejection.

The Office Action alleges that claim 1 is ambiguous in that reference is made to plural "reinforcing layers" and then later to a singular "said reinforcing layer." Amended claim 1 recites "at least one reinforcing layer" and thus correlates with "said reinforcing layer."

The Office Action states that the phrase "the a side surface" in claim 1 is awkward and confusing. Amended claim 1 recites "the side surface."

The Office Action alleges that the phrase "upon formation of a green tire for the tire to be produced" as the last phrase in claim 1 is awkward and confusing. Amended claim 1 recites "to a green tire" and repositions this phrase within the claim.

The Office Action also alleges that claim 1 does not generically define both (i) a process in which the reinforcing layers are preformed and then applied to the tire and (ii) a process in which the reinforcing layers are formed in the tire *in situ*. Amended claim 1 clearly defines a process generic for both methods. In addition, amended dependent claims 5 and 6 clearly define the preformed and *in situ* formed processes respectively.

The Office Action states that the term "type" raises the potential for confusion and suggests deleting this term. Amended claims 8 and 10 delete the term "type."

Claims 1-10 satisfy the requirements of 35 U.S.C. §112, second paragraph. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection.

IV. Rejection under §103

The Office Action rejects claims 1-10 under 35 U.S.C. §103(a) over JP 6-192479 to Bridgestone ("JP '479") or JP 10-315717 to Bridgestone ("JP '717") in view of U.S. Patent No. 4,963,207 to Laurent ("Laurent"), U.S. Patent No. 5,114,512 to Holroyd et al. ("Holroyd '512") and U.S. Patent No. 4,983,239 to Holroyd et al. ("Holroyd '239"). Applicant respectfully traverses the rejection.

Independent claim 1 is drawn to a method of producing a pneumatic tire that includes a reinforcing layer positioned at the side surface area of the tire. In particular, the reinforcing layer is formed as an annular laminated ply by spirally winding a ribbon of unvulcanized rubber and oriented short fibers. The annular laminated ply is applied to a green tire. The references cited in the Office Action do not teach or suggest such a method.

JP '479 describes a bead filler rubber composition including a blend rubber and polyamide fibers. The composition specifically serves as a bead filler rubber and reportedly possesses improved durability (see English Abstract). JP '717 describes a tire having a reinforcing member layer that includes short fibers. The reinforcement layers are formed as rubber inserts requiring a molding operation (see English Abstract and instant Specification page 2, lines 21-23).

As acknowledged in the Office Action, neither JP reference teaches or suggests forming a reinforcing ply layer by spirally winding a ribbon as claimed. In particular, neither JP reference teaches or suggests forming a reinforcing layer as an annular laminated ply formed of spirally wound ribbon of unvulcanized rubber and oriented short fibers embedded therein.

During the April 10 telephone interview, the Examiner pointed to Figure 1 in JP '479 as allegedly showing tire formation with fibers oriented in a circumferential direction. However, one of ordinary skill in the art would have recognized that this illustration is a mere diagrammatic representation of the fibers. In fact, as described in JP '479, the fibers are not generally oriented in such a regular aligned manner. Moreover, the fibers shown in Figure 1 of JP '479 are not produced from a spirally wound ribbon, as claimed.

Including short fibers in a spirally wound ribbon provides increased control of the orientation of the fibers. In particular, the short fibers are more highly organized in the desired circumferential direction by spirally winding a ribbon as claimed. Therefore, the claimed method of tire production makes it possible to easily achieve an optimum stiffness, i.e., to avoid excessive stiffness that would result in degraded riding comfort, or insufficient stiffness that would result in degraded durability and degraded response characteristics. Such a feature is nowhere taught or suggested in the JP references.

The JP references also do not teach or suggest a method wherein the annular laminated ply is applied to a green tire. Furthermore, the secondary references do not remedy the deficiencies of JP '479 and JP '717.

Laurent describes the formation of tire components by the successive application of rubber ribbons to a firm support. The Office Action cites Laurent for teaching the concept of spin forming rubber components during tire formation.

Holroyd '239 describes a method used in the formation of tire components that includes placing an uncured elastomeric extrudate strip into an annular mold, winding the strip to substantially its final shape, consolidating this component to its final form with uncured elastomeric material, and then shaping it to its final configuration by a forging die (col. 1, lines 41-49). The Holroyd '239 method provides components used in the tire apex and integral chafer (col. 1, line 35-37).

Holroyd '512 describes the formation of bead filler in the tire apex that includes helically wound polymer strips (Abstract and Figures 1-5). The windings may include alternating fibers of Kevlar or wire (col. 1, lines 56-65).

The Office Action concludes that it would have been obvious to one of ordinary skill in the art to form the rubber filler of JP '479 or the reinforcing layer of JP '717 using spirally wound ribbon as described in the secondary references. Applicants respectfully disagree with this conclusion.

The instant specification discloses a method of producing a pneumatic tire having improved lateral rigidity and steering stability performance. The tire produced by the claimed method includes, on a side surface area, an annular laminated ply made of unvulcanized rubber and oriented short fibers. The claimed method forms the annular laminated ply by spirally winding and laminating a ribbon of an unvulcanized rubber having

a thin gauge and oriented short fibers embedded therein. In addition, the annular laminated ply is applied to a green tire.

Applicant's method forms a tire having at least one reinforcement layer formed as an annular laminated ply, applied to a green tire as a ribbon from an extruder. In contrast to the JP '479 and JP '717 references, the claimed method allows for the placement of a reinforcement layer in the side surface area of the tire without performing any molding operations. The JP references do not disclose this method.

The secondary references also do not teach or suggest this aspect of the claimed method. Like the JP references, Holroyd '239 also teaches a method of forming a tire component involving a molding step and a forging dye. In contrast to a ply layer, Holroyd '512 teaches a helically shaped tire component. Furthermore, Holroyd '512 describes a type of spiral winding in which Kevlar and wire components are intertwined with the rubber threads. Thus, one of ordinary skill in the art would fail to find any motivation in Holroyd '512 to provide for the additional "oriented short fibers embedded therein," as claimed. Laurent also does not teach or suggest a reinforcing layer as an annular laminated ply.

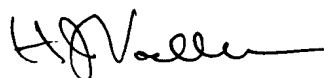
For at least the above reasons, the combination of JP '479 and JP '717 and the secondary references cited in the Office Action would not have taught or suggested and thus would not have rendered obvious the claimed method of forming a tire including a reinforcing layer as an annular laminated ply formed by spirally winding and laminating a ribbon of an unvulcanized rubber having a thin gauge and oriented short fibers embedded therein. Claims 2-10 are dependent from claim 1 and also would not have been obvious over the cited references for the same reasons. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection.

V. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-10 are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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